

REMARKS/ARGUMENTS

Claims 1-41 were pending in the present application. Claims 7-40 were earlier withdrawn from consideration. By virtue of this response, Claims 1 and 5 have been amended. Accordingly, Claims 1-6 and 41 are currently under consideration. Amendment or cancellation of certain claims is not to be construed as a dedication to the public of any of the subject matter of the claims as previously presented. No new matter has been added.

First, the Examiner objected to the drawings due to FIGs. 1D and 4 using the same reference number. FIG. 4 has been amended to provide a different reference number (34b) as has the corresponding portion of the specification.

The Examiner also pointed out that FIGs. 1C and 1D did not include reference number 43. That has been added here to FIGs. 1C, 1D and also FIG. 2.

The Examiner also noted that FIG. 1A apparently improperly referred to " $T = F(T)$." This was an error in the formal version of FIG. 1A, not present in the originally filed version of FIG. 1A and is corrected herein. The Examiner also pointed out that use of the reference WM in FIG. 3 was perhaps inconsistent. FIG. 3 has been amended accordingly.

The Examiner also indicated objectionable material in the specification at page 15, line 10 and page 15, line 20. Each of these lines has been amended here to conform to other portions of the specification.

All of the above amendments to the specification and drawings are to conform same and do not introduce any new matter.

The Examiner also objected to Claims 1 and 5. These claims have been amended accordingly. The Examiner's close attention to the claims is appreciated. It is noted that these are merely corrections of typographical errors, are not for reasons of patentability, and do not narrow the claims.

The Examiner also rejected Claims 4 and 41 under 35 USC §112, second paragraph. The Examiner said that the limitation “line 21” is not further limiting as it only describes an arbitrarily number of the video line, not a specific function for that video line.

The Examiner of course is correct that Claims 4 and 41 recite a particular video line; however it is pointed out that these claims are respectively dependent upon Claim 1 and Claim 5 which are specific in reciting, for instance, see Claim 1 “providing data in a predetermined video line of the video signal in the vertical blanking interval carrying parental blocking data.” (emphasis added.) Thus the specific function of the video line is indeed indicated in base Claim 1 (and also base Claim 5) and Claim 4 merely adds the additional limitation of giving the video line number. Therefore it is believed that Claim 4 (and Claim 41) without amendment are in conformance with 35 USC §112, second paragraph, and so this rejection is traversed, and it is requested that this rejection be withdrawn as pertains to both Claims 4 and 41.

Claims 1-3, and 5-6 stand rejected under 35 USC §102(e) as anticipated by Linnartz.

Claims 4 and 41 stand rejected under 35 USC §103(a) as unpatentable over Linnartz in view of Elam. The Examiner states in pertinent part:

In reference to Claims 4 and 41, Linnartz discloses everything as applied above to Claims 1 and 5, respectively. However, Linnartz does not explicitly disclose sending the associated data on video line 21 of the vertical blanking interval.

Elam discloses that program related data is permitted to be inserted into line 21 of the vertical blanking interval of video signal. This data may give “supplementary program information”. Elam further discloses that “Television receivers are now commercially available having a circuit for detecting the 21 line data” (col. 1, lines 15-23).

§102 Rejection Traversed

First, the §102 rejection citing Linnartz is traversed. Claim 1 clearly recites an element not disclosed in Linnartz which is “providing data in a predetermined video line of the video signal

in the vertical blanking interval carrying parental blocking data,”. Linnartz is not specific about the location of his data. The Examiner cites column 6, lines 3-11 of Linnartz which states “an analogue watermark can for instance be combined with ticket, represented in Vertical Blanking Intervals.”

Therefore Linnartz in this passage is not specific about which line or lines in the vertical blanking interval carry the ticket. Specifically, there is no indication in this part of Linnartz or elsewhere that line 21, or the video line carrying parental blocking data, is where the ticket (data) is present. Hence clearly Linnartz by itself fails to meet Claim 1 or Claim 5.

Elam - Use of Line 21

It is acknowledged, however, that as pointed out in the §103 rejection, that the second reference Elam does disclose use of video line 21 for carrying digital data detected by the closed caption circuitry of the TV receiver and converting that data into digital data for control of the TV receiver. Hence Elam is essentially an early version of the “V-chip” data and associated television set V-chip circuitry whose existence was well known and in fact is specifically referred to in the present application beginning at page 5, line 23:

Video line 21 (in NTSC-TV, which is the U.S. television standard) currently is used to carry closed caption data and parental blocking (V-chip data) in accordance with two significant standards ... In particular various U.S. laws require television sets sold in the U.S. to react to data carried by line 21 and require the data on line 21 to be preserved during transmission through various paths.

Hence Elam discloses no more than was acknowledged in the present specification as being well known background art in the television field, which is use of line 21 for V-chip (parental blocking) data transmission.

Claims Not Anticipated or Obvious

It is respectfully submitted that first, Linnartz does not anticipate any of the present claims, including Claims 1 and 5, at least for the reasons pointed out above. Moreover, there is no

suggestion in Linnartz itself to modify his disclosed system to meet Claims 1 or 5, that is to use the parental blocking video line to carry the ticket. Linnartz is silent about which video lines to use in the VBI. Further, the Examiner's combination of Elam to meet the deficiency of Linnartz, it is respectfully submitted, is not adequately motivated and hence the §103 rejection combining the two references is inappropriate and should be withdrawn.

The Examiner cited a reason for the combination of the two references which is (see Action, page 7) "in order to take advantage of the fact that commercially available receivers can already detect data carried on line 21, such as supplementary program information, as taught by Elam (see column 1, lines 15-23)." However, as pointed out above, this passage of Elam is merely a description of the well known use of video line 21 for closed captioning or other data giving supplementary program information. Further, Elam acknowledges at column 1, line 21 that "Television receivers are now commercially available having a circuit for detecting the line 21 data." Of course, this was also acknowledged in the present application at page 5 as pointed out above, when in fact the situation is now further advanced so that television receivers must include such a circuit as must other television tuners, for instance those used in the computer field. Hence in that sense Elam adds no further information to that already provided in the present specification about the state of the art.

In fact, the present invention uses exactly this advantage that line 21 (in NTSC-TV), or in other television standards the parental blocking data video line, has special advantages in that the data therein must be recognized by television receivers and tuners. However, this mere fact does not provide sufficient motivation for combining the teachings of Elam with those of Linnartz, as explained in detail hereinafter.

Elam and Linnartz

Elam and Linnartz are directed to solving different technical problems. Elam is directed to control of what one can view on the television set, depending on the digital data in the transmitted signal. See Elam, column 1, beginning line 63:

The novel feature of this invention is the combination of a television set equipped with a selector switch interconnected with a digital signal decoder which together allows television users to have their sets automatically perform blanking of the picture and sound. The selector switch would allow the user to select the particular digital code words, transmitted as part of the video signal, which will cause the television receiver to blank either the picture or sound. (emphasis added.)

Thus Elam is clearly directed to control of the television set depending on the supplementary data included in each particular program.

In contrast, Linnartz is not directed to viewing control and is not at all concerned with viewing of the originally transmitted TV signal. Instead, Linnartz is directed to what is generally called copy control or copy protection, see the first paragraph of the Summary of the Invention of Linnartz at column 2, line 26:

It is an object of the invention to provide means for recording supplemental information related to the content information such that manipulation of the supplemental information is countered more effectively.

For this purpose, the method of recording according to the invention is characterized in that a control signal is recorded representing a control pattern. (emphasis added.)

Further at column 4, beginning line 25 in the first paragraph of the "Description of the Preferred Embodiments" Linnartz states:

The general concept of the invention is addition a control pattern [sic] to a watermarked, encoded signal, such that a one-way function can be used for generating the watermark from the control pattern. (emphasis added.)

Further at Linnartz column 4, line 47:

A lot of applications may benefit from this control, e.g. copy control, payment of copyright fees, music or video rentals, etc. The copy control may be similar to said DCC copy bits. The presence of a

control pattern may be required to allow playback, and/or to indicate the copyright status, e.g. allowing one generation of copies. (emphasis added.)

Further continuing on the next paragraph, at column 4, beginning line 58:

An embodiment of the invention is a system for copy protection allowing one generation of copies, also called copy-once. (emphasis added.)

Hence the purpose (stated in the first paragraph of both the Summary and the Description) in Linnartz is copy control, that is preventing copying, rather than control of original viewing. The security of the watermark is the object and this is accomplished by the associated copy control ticket, see Linnartz column 6, beginning line 17:

A Copy-Control Ticket T which plays the role of a cryptographic counter. T is a small data field that is present in the data headers, e.g. added to the signal in a similar manner as said DCC copy control bits. T typically contains 40 to 1000 bits.

Further see the paragraph in Linnartz at column 5, beginning line 3 through line 26 (not reproduced here) which describes the cryptographic aspect of the relationship between the watermark and the control pattern as being a “one way function” (see column 5, line 5) where the relationship between the watermark y and the control pattern x uses a number N which is the product of “two secret large primes.” (The difficulty of factoring of such a number is a standard cryptographic technique.) See column 5, lines 7 and 8. Also pointed out is the use of the “one-way function” suggested by Diffie and Hellman in “New Directions in Cryptography” at column 5, lines 10-11. Linnartz points out that p is a “large prime” with $p-1$ having “a large prime factor.” Further, this system can use a “secret-key encryption algorithm” such as DES (data encryption standard) for the relationship between the watermark y and the control pattern x , see column 5, lines 16 and 17. Again at column 5 line 20 there is reference to a “secret-key encryption algorithm”. Hence it is clear that cryptography is required by Linnartz to preserve the security of the watermark using the ticket. Hence Linnartz is a security system for preserving the watermark from unauthorized

tampering using cryptography via the ticket T so as to carry out the purpose of copy control or copy protection.

In contrast, Elam is directed to the different technical problem of using the line 21 data and associated circuitry in a TV set for control of viewing of particular programs. In Elam there is no possibility for controlling copying nor any suggestion to do so, nor any security or cryptography aspect.

In furtherance of this, Elam uses the particular coding scheme shown in his tables I and II (columns 4 and 5) and illustrated pictorially in his FIG. 4. As seen in Elam FIG. 4 and in the tables, the Elam encoding scheme uses a set of six (Table I) or nine (Table II) rating scheme codes involving only two characters for each code, with eight bits per character. This two-character 16 bit code is also shown in FIG. 4. Hence the amount of coded information which Elam conveys is limited to only 16 bits.

Hence there are at least three independent reasons why the suggested combination of Elam with Linnartz is not well motivated, and so the §103 rejection should be withdrawn:

- (1) The Examiner's stated motivation to combine the two references is inadequate;
- (2) The two references are directed to different technical concepts and also solve different technical problems;
- (3) The Examiner's combination of references would not appear to one of ordinary skill in the art to be operative and hence would not occur to one of ordinary skill in the art.

The following explains why each of these reasons is independently sufficient to render the §103 rejection prima facie inadequate.

1. The Examiner's suggested motivation to combine the references is inadequate.

The Examiner's stated motivation to combine is "in order to take advantage of the fact that commercially available receivers can already detect data carried on line 21, such as supplementary program information, as taught by Elam ..." It has been known for many years that video line 21 is suitable for carrying closed caption or other supplementary digital data. This is undisputed. However, in spite of the teachings of Linnartz, no one had thought to use line 21 to carry data of the type disclosed by Linnartz for purpose of copy control. The disclosure of Linnartz obviously assumes that the player, e.g. 14 in FIG. 1, which receives the copy protected signal, has the circuit 131 for detecting the ticket. The only relevant disclosure of this circuit 131 in Linnartz is that this ticket is detected somewhere in the vertical blanking intervals. Since Linnartz apparently felt that data placement anywhere in the vertical blanking intervals is suitable, there seems to be no reason to associate Elam with this teaching of Linnartz. Clearly, it is possible in Linnartz to detect the ticket in any video line in the vertical blanking interval. Moreover, Linnartz is directed to a copy control system using a recorder/player 14; there is no dedicated circuitry in the associated television set since Linnartz is directed to recording rather than viewing, so the Elam TV set (TV receiver) modifications which the Examiner cites are not relevant to Linnartz. Hence the Examiner's motivation for the combination is inadequate.

2. Linnartz and Elam are directed to different technical purposes

As pointed out above, Elam is directed to the user programming his television set not to show certain programs. In contrast, Linnartz is a copy control system not having much to do with the actual viewing but instead controlling copying and recording. Moreover, Linnartz has security (cryptography) to protect the watermark from tampering. In contrast, the Elam system is an overt or open (non-cryptographic) system using a simple code which would of necessity to be useful must be known to everyone involved, that is both the broadcasters of the programs and also the television set manufacturers, so as to enable blocking viewing of certain programs. Thus not only is Linnartz directed to copy control/prevention recording while Elam is directed to the field of viewing control, but additional Linnartz must include a security aspect using the above described secret-key

encryption. Elam requires special circuitry in the T.V. set; Linnartz requires special circuitry in a player/recorder only.

A recent case Ruiz v. A. B. Chase Co., 357 F.3d 1270, 69 U.S.P.Q. 2d, 686 (Ct. Appeals Fed. Circ., 2004) addresses the issue of sufficient motivation to combine references to support a §103 rejection. The court stated (357 F.3d 1276-1277) that “the motivation to combine the teachings in the prior art may come from the nature of the problem to be solved, ...” In Ruiz, the two references addressed according to the court the exact same technical problem, which was considered sufficient motivation. However, that situation does not obtain between Linnartz and Elam where the technical problems differ.

Hence given the significantly different technical problems addressed by the two references this is further reason why the motivation to combine is not present.

3. The combination of Elam and Linnartz would not appear to be operative

Even if arguendo one would were to combine the teaching of Elam with that of Linnartz, the combined system would not appear to one of ordinary skill in the art to function to accomplish the desired objective. This is due to the very different informational requirements of the two references. As stated above, the copy control ticket T in Linnartz is disclosed as being 40 to 1000 bits in length. The copy control ticket T at Linnartz column 6, line 17 corresponds to the control pattern x of column 5, lines 3 through 26. It is clear that the size of x must be sufficient to provide the appropriate secret key for the encryption algorithm of Linnartz, see column 5, line 17. As is well known, the length of encryption keys is essential in determining their security. Hence the minimum length of the Linnartz ticket T to be effective in providing watermark security is stated as approximately 40 bits. However, of course Linnartz suggests going up to 1,000 bits for the key length.

In contrast, in Elam the data shown as a waveform in FIG. 4 only has room for 16 bits in the relevant part of the video data line 21. As shown this only includes two characters each expressed in terms of 8 bits plus a stop bit S. Hence the amount of information which can be

conveyed in line 21 is very limited, but of course this is sufficient for the very simple 16 bit codes of Elam Tables I and II. Since Elam has no interest in any security function or encryption or encryption algorithm, the shorter the amount of data conveyed the better.

Suppose then, per the Examiner, one were to substitute the use by Elam of video line 21 into the Linnartz system. Then the ticket T would only have a total length of 16 bits since that is all Elam provides. 16 bits is clearly insufficient to provide any sort of secret key since 16 bits provides 2^{16} keys which is equal to only 64,000 keys. A secret key encryption system with only 64,000 possible keys is readily broken by trial and error ("brute force") and hence would not provide the desired security for the Linnartz system. Hence, one of ordinary skill in the art of copy control/recording control (which is the relevant field for Linnartz) would upon reading the Elam disclosure regard this as not conveying sufficient information in the ticket to provide any kind of security at all, and hence being well short of the high level security needed to protect the Linnartz watermark from tampering.

Note in this regard also the reference at Linnartz column 5, line 18 to "the DES". This refers to the Data Encryption Standard which is a well known encryption standard with a key length of 56 bits. In DES, all security rests within the key since the DES algorithm itself is well known. It is well known that the adoption of the DES 56 bit key length is considered by many experts to be insecure due to the too-short key length. For a description of DES and this shortcoming see "Applied Cryptography" by Bruce Schneier, John Wiley & Sons Inc., 1996, pages 270 and 283, also cited in Linnartz by the PTO as a reference ("Other Publications"). Hence the reference to "DES" in Linnartz to one of ordinary skill in the art conveys the suggestion of using a 56 bit key, in other words the ticket T (otherwise referred to as x in column 5) would have a length of 56 bits. But Elam has no way of conveying 56 bits since he only has room for 16 bits in video line 21.

Hence the introduction of Elam's use of video line 21 to convey supplementary data into the Linnartz system would result in a system which would not operate effectively in terms of preserving any level of security for the watermark and hence would be contrary to the security goal of Linnartz. Thus to one of ordinary skill in the art this would not appear to be a useful combination

upon reviewing the disclosures of Elam and Linnartz. Hence this perceived lack of usefulness or operability for the intended purpose leads to the conclusion that it is not well motivated to combine the Elam teaching into the Linnartz system.

Hence for at least the above three independent reasons, the suggested combination of the Linnartz and Elam references is not properly motivated and hence is prima facie lacking in support. Hence the combination is not appropriate and cannot be relied upon to support the §103 rejection.

Hence not only do Claims 4 and 41, which stand rejected citing the combination of the two references, distinguish thereover but so do all of the other claims against which no such rejection was made. As pointed out above, of course, it is clear that Linnartz by itself fails to meet Claims 1 and 5. Hence the only remaining rejection is that citing obviousness. Since the obviousness rejection also is not appropriate, it is therefore respectfully submitted that all pending Claims 1-6 and 41 distinguish over the references, alone or in combination, and hence are allowable.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone interview would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 136922001900. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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